

**REMARKS**

In connection with Applicants' Request for Continued Examination (RCE), Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.114, and in light of the remarks which follow.

Claims 31-47 and 49-67 are present in this application.

Claims 31, 50 and 55 have been amended to recite that the polyamide is present in the composition in an amount greater than the amount of the compound having at least one isocyanate function. Support for this is found in the examples (page 19, line 25 - page 26, line 6, see especially Table 1 on page 21). Claims 43 and 44 have been amended to clarify that compound A is the compound having at least one isocyanate function. Support for this is found in Claim 31 and in the specification on page 3, lines 19-20.

Claims 56-67 have been added. Claims 56-58 depend from Claims 31, 50 and 55, respectively, and recite the polyamide is a polycondensate of dicarboxylic acids and diamines or a polycondensate of lactams and/or amino acids. Support for this is found in the specification at least on page 6, lines 5-13. Claims 59-61 are independent claims which are analogous to the previous version of Claims 31, 50 and 55, respectively, and further recite the polyamide is selected from a specific group of polyamides. Support for this is found in the specification at least on page 6, line 25 - page 7, line 5. Claims 62-64 depend from Claims 59-61, respectively and recite the polyamide is selected from polyamide 6 and polyamide 6,6 and blends and copolymers thereof. Support for this is found on page 7, lines 6-8 of the specification and in originally filed Claim 3. Claims 65-67 depend from Claims 31, 50 and 55,

respectively and recite the polyamide is present in the composition in an amount of at least 51% by weight of the total composition. Support for this is found in the examples (page 19, line 25 - page 26, line 6, see especially Table 1 on page 21.

No new matter has been added in making these amendments.

### **Comments on the Response to Arguments in the Office Action**

The Office Action acknowledges that Blount does not refer to the composition as a polyamide composition. Applicants note that both the terms "expandable" and "polyamide in the preamble limit the claims. Applicants direct the Examiner to MPEP Section 2111.02 Effect of Preamble, which states:

"[A] claim preamble has the import that the claim as a whole suggests for it." *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995). "If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999). See also *Jansen v. Rexall Sundown, Inc.*, 342 F.3d 1329, 1333, 68 USPQ2d 1154, 1158 (Fed. Cir. 2003)(In considering the effect of the preamble in a claim directed to a method of treating or preventing pernicious anemia in humans by administering a certain vitamin preparation to "a human in need thereof," the court held that the claims' recitation of a patient or a

human "in need" gives life and meaning to the preamble's statement of purpose.). *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951) (A preamble reciting "An abrasive article" was deemed essential to point out the invention defined by claims to an article comprising abrasive grains and a hardened binder and the process of making it. The court stated "it is only by that phrase that it can be known that the subject matter defined by the claims is comprised as an abrasive article. Every union of substances capable *inter alia* of use as abrasive grains and a binder is not an 'abrasive article.'" Therefore, the preamble served to further define the structure of the article produced.). (Emphasis added by Applicant's representative.)

#### **I. PREAMBLE STATEMENTS LIMITING STRUCTURE**

Any terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation. See, e.g., *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257, 9 USPQ2d 1962, 1966 (Fed. Cir. 1989) (The determination of whether preamble recitations are structural limitations can be resolved only on review of the entirety of the application "to gain an understanding of what the inventors actually invented and intended to encompass by the claim."); *Pac-Tec Inc. v. Amerace Corp.*, 903 F.2d 796, 801, 14 USPQ2d 1871, 1876 (Fed. Cir. 1990) (determining that preamble language that constitutes a structural limitation is actually part of the claimed invention). See also *In re Stencel*, 828 F.2d 751, 4 USPQ2d 1071 (Fed. Cir. 1987). (The claim at issue was directed to a

driver for setting a joint of a threaded collar\*>;< however>,< the body of the claim did not directly include the structure of the collar as part of the claimed article. The examiner did not consider the preamble, which did set forth the structure of the collar, as limiting the claim. The court found that the collar structure could not be ignored. While the claim was not directly limited to the collar, the collar structure recited in the preamble did limit the structure of the driver. "[T]he framework - the teachings of the prior art - against which patentability is measured is not all drivers broadly, but drivers suitable for use in combination with this collar, for the claims are so limited." Id. at 1073, 828 F.2d at 754.).

In the instant application, the words "expandable polyamide" are 'necessary to give life, meaning, and vitality' to the claims. (See *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, *Ibid.*) As in *Kropa v. Robie* (*Ibid.*), where the phrase "An abrasive article" was deemed to be essential to an article comprising abrasive grains and a hardened binder and the process of making it, the phrase "expandable polyamide" is also essential to the claims.

### **Claim Objection**

Claim 55 is objected to for not ending with a period.

Claim 55 has been amended to end with a period.

Applicants therefore request withdrawal of this objection.

**35 U.S.C. §102 prior art rejections**

Claims 31, 39-43, 47, 49-51 and 53 have been rejected under 35 U.S.C. §102(b) as being anticipated by Blount. (US 4,374,976)

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." (MPEP 2131).

Blount discloses a process for the production of a "polyamide silicate resinous product" produced by reacting a halosilicon acid, an organic polyamine and a polycarboxylic acid and/or polycarboxylic acid anhydride. (col. 2, lines 1-5 and col. 2, line 67 - col. 3, line 4). Such a material is taught to be reaction products rather than a polyamide, as known by one of ordinary skill in the art. The fact that Blount specifically describes this material as a polyamide silicate resinous product, and not a polyamide, indicates that the material is not a conventional polyamide, especially as used in the instant invention. In fact Blount does not describe the structure or chemical nature of the polyamide silicate resinous product except to define it as being produced by reacting a halosilicon acid, an organic polyamine and a polycarboxylic acid and/or polycarboxylic acid anhydride. Blount therefore does not teach a composition comprising a polyamide.

Blount does not teach a composition comprising a polyamide and a compound having at least one isocyanate function. Blount teaches the polyamide silicate resinous products may be reacted with polyisocyanates to produce polyurethane foams, but does not teach a composition comprising a polyamide and a compound having at least one isocyanate function. Blount

does not teach a composition comprising a polyamide, a compound having at least one isocyanate function and a compound having at least one acid function. Blount teaches that polyhydroxyl compounds (polyols) may be used with polyisocyanates or may be first reacted with a polyisocyanate to produce a polyurethaneprepolymer that can be used in that invention. (see col. 8, lines 49-53). Blount also teaches that reaction products of aromatic diisocyanates and various organic compounds may also be used. (col. 8, lines 54-59) Blount further teaches the optional addition of polybasic, preferably dibasic, carboxylic acids in forming the reactions products with the diisocyanates. (see col. 9, lines 1-19) As such, Blount discloses that the carboxylic acids will be used in making the reaction product and therefore the carboxylic acids would no longer exist as carboxylic acids, but would instead be converted into the reaction products. Therefore, Blount does not disclose a compound having at least one acid function in a composition with a polyamide and a compound having at least one isocyanate function.

Blount teaches the polyamide silicate resinous products may be reacted with polyisocyanates to produce polyurethane foams. (see abstract, col. 7 lines 46-48; col. 16, lines 29-30; example 4, col. 17 lines 46-47; example 5, col. 18, line 14; example 8, col. 18, line 66; and example 9, col. 19, lines 19-20). Blount teaches the production of polyurethane foams, which are chemical distinct from polyamide foams.

The Office Action alleges on page 3 [Regarding Claims 31 and 39] that "Organicpolyhydroxyl compounds, preferably carboxylic acids, may also be used in conjunction with the polyisocyanate. (Column 8, Line 49 - Column 9, Line 19)." The

Office Action has misunderstood the teachings of Blount in the cited section. Col. 8, lines 49-53 recites:

Organic polyhydroxyl compounds (polyols) may be used in this invention with polyisocyanates or may be first reacted with a polyisocyanate to produce isocyanate-terminated polyurethaneprepolymers and then also used in this invention.

The teachings of this section are limited to polyols. There is no mention of carboxylic acids.

Col. 8, line 54 - Col. 9, line 7 recites:

Reaction products of from 50 to 99 mols of aromatic diisocyanates with from 1 to 50 mols of conventional organic compounds with a molecular weight of, generally, from about 200 to about 10,000, which contain at least two hydrogen atoms capable of reacting with isocyanates, may also be used. While compounds which contain amino groups, thiol groups, carboxyl groups or silicate groups may be used, it is preferred to use organic polyhydroxyl compounds, in particular, compounds which contain from 2 to 8 hydroxyl groups, especially those with a molecular weight of from about 800 to about 10,000 and preferably from about 1,000 to about 6,000, e.g., polyesters, polyethers, polythioethers, polyacetals, polycarbonates or polyester amides containing at least 2, generally from 2 to 8, but preferably dihydric alcohols, with the optional addition of trihydric alcohols, and polybasic, preferably dibasic, carboxylic acids. Instead of

the free polycarboxylic acids, the corresponding polycarboxylic acid anhydrides or corresponding polycarboxylic acid esters of lower alcohols or their mixtures may be used for preparing the polyesters.

This section teaches that reaction products of aromatic diisocyanates and conventional organic compounds can be used. (Col. 8, lines 54-59) This section then describes various organic compounds that can be reacted with the aromatic diisocyanates. (Col. 8 line 59 - Col. 9, line 3) Blount teaches that polybasic carboxylic acids may optionally be added to the aromatic diisocyanates and the conventional organic compounds to obtain the reaction products. (Col. 9, lines 1-3) The use of carboxylic acids to form the reaction products converts the carboxylic acids into the reaction products and therefore the carboxylic acids are not present in the reaction product but rather have been converted into the reaction product.

The cited claims are not anticipated by Blount for at least the following reasons. Claim 31 is directed to an expandable polyamide composition that comprises three components:

- A: a compound having at least one isocyanate function;
- B: a polyamide; and
- C: a compound having at least one acid function, optionally a carboxylic acid function.

Blount discloses forming a polyurethane foam using the polyamide silicate resinous product of his invention. However, the claims of the instant application



recite an expandable polyamide foam, which is different from a polyurethane foam. In addition, the claims require the composition have the three components recited above. Blount does not teach a composition comprising the three compounds recited in the instant application. Therefore, Claim 31 is not anticipated by Blount.

In addition, Claim 31 further recites "wherein the polyamide is present in the composition in an amount greater than the amount of the compound having at least one isocyanate function". Blount teach the opposite of this limitation, i.e. a greater amount of the compound having at least one isocyanate function than the polyamide. Blount teaches that the components used in the production of the polyurethane silicate be within the following ratios: 1 to 50 parts by weight of polyamide silicate resinous product and 50 parts by weight of an organic polyisocyanate. (col. 11, lines 26-32) The amounts of the polyamide in the relevant examples (Examples 4-9, col. 17, line 28 - col. 19, line17) are also less than the amount of isocyanate.

Therefore, Claim 31 is not anticipated by Blount because Blount does not teach each element of Claim 31.

Claims 39-43 and 47-49 depend from Claim 31. These claims are not anticipated by Blount because Claim 31, from which they depend, is not anticipated by Blount.

Claim 50 requires the step of heating an expandable polyamide composition which has the same elements as on Claim 31. As discuss above for Claim 31, Blount does not teach all of the elements of the expandable polyamide composition. Therefore Claim 50 is not anticipated by Blount.

Claims 51 and 53 depend from Claim 50. These claims are not anticipated by Blount because Claim 50, from which they depend, is not anticipated by Blount.

Newly added Claims 56-67 contain all of these elements as well as additional elements not found in Blount.

Therefore Claims 31, 39-43, 47-51, 53 and newly added Claims 56-67 are not anticipated by Blount and these rejections should be withdrawn.

**35 U.S.C. §103(a) Obviousness Rejections**

1. Claims 32 and 34 have been rejected under 35 U.S.C. §103(a) as unpatentable over Blount (US 4,374,976) in view of Schönfeld et al. (US 5,760,147).

Applicants respectfully submit that these claims are not obvious over Blount in view of Schönfeld et al. and that these claims are allowable.

To establish a *prima facie* case of obviousness, three basic criteria must be met. (MPEP 2143) First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teachings of Blount have been described above under the 35 U.S.C. §102(b) rejections.

Schönfeld discloses a molding composition comprising: (1) at least one polyamide, and (2) at least one polymer containing sulfoxide groups. Schönfeld does not disclose a three component composition and does not disclose one of the compounds of their composition being a compound having at least one acid function.

The Office Action indicates that Blount teaches the composition of Claim 31 but is silent regarding the linearity and molecular mass of the polyamide and relies

on Schönfeld to provide these elements. As was shown above in the discussion of the anticipation rejection, Blount does not teach the composition of Claim 31.

Schönfeld does not overcome the deficiencies of Blount.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. There is no suggestion or motivation in Blount or Schönfeld to modify or combine the reference teachings on polyurethanes with teachings on polyamides to obtain the expandable polyamide composition comprising the three compounds required by Claim 31. One of ordinary skill in the art would not be motivated to combine reference teachings regarding a polyurethane with teachings regarding a polyamide because such a person would realize that they are distinct compositions formed from different starting materials. Also the Office Action has not alleged any motivation or suggestion to modify Blount to obtain the Applicant's invention. Therefore, there is no suggestion or motivation, either in the cited references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to obtain the invention of the instant application.

To establish a *prima facie* case of obviousness, there must be a reasonable expectation of success. There is no reasonable expectation of success based on the teachings in Blount and Schönfeld that an expandable polyamide composition comprising the required compounds could be prepared because Blount and Schönfeld are silent on one of the components being a compound having at least one acid function. There cannot be a reasonable expectation of success in obtaining

the Applicants' invention when the cited prior art does not provide any teachings regarding a required element in a composition. The Office Action has not indicated that there is a reasonable expectation of success in obtaining the Applicant's invention by combining these references. Therefore there is no reasonable expectation of success in producing the applicants' invention based on the teachings in the cited prior art.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. As shown above in the response to the rejection of Claim 31 under 35 U.S.C. §102(b), Blount does not teach or suggest all of the claim limitations. Schönfeld does not teach or suggest the composition with the three required compounds as required by the claims. The Office Action has not indicated that Schönfeld teaches or suggest any of the required elements of Claim 31. Therefore, the prior art references, either alone or combined do not teach or suggest all the claim limitations.

Applicants respectfully submit that Claims 32 and 34 are not obvious over Blount in view of Schönfeld and this rejection should be withdrawn.

2. Claim 33 has been rejected under 35 U.S.C. §103(a) as unpatentable over Blount (US 4,374,976) in view of Letts. (US 5,891,563).

Applicants respectfully submit that Claim 33 is not obvious over Blount in view of Letts and that Claim 33 is allowable.

The teachings of Blount have been described above under the 35 U.S.C. §102(b) rejections.

Letts discloses composite boards with a foam core of polyisocyanurate or polyurethane materials. Letts discloses that the faces surrounding the core comprise a polymer layer that can include a polyamide.

The Office Action indicates that Blount teaches the composition of Claim 31 but does not teach the polyamide is one of the claimed polyamides and relies on Letts to provide these elements. As was shown above in the discussion of the anticipation rejection, Blount does not teach the composition of Claim 31. Letts does not overcome the deficiencies of Blount.

The above discussion of the non-obviousness of Claim 31 equally applies to the instant rejection, using Letts in place of Schönfeld. The previous response to the rejection of these claims also applies and is incorporated herein.

Applicants respectfully submit that Claim 33 is not obvious over Blount in view of Letts and request that this rejection be withdrawn.

3. Claims 35 and 37 have been rejected under 35 U.S.C. §103(a) as unpatentable over Blount (US 4,374,976) in view of Glück. (US 5,959,069).

Applicants respectfully submit that Claim 33 is not obvious over Blount in view of Glück and that Claims 35 and 37 are allowable.

The teachings of Blount have been described above under the 35 U.S.C. §102(b) rejections.

Glück discloses H-shaped polyamides and their use in molded and extruded articles. Glück does not provide any teachings regarding expandable foam compositions or the combination of a polyamide with a compound having an acid function and an isocyanate.

The Office Action indicates that Blount teaches the composition of Claim 31 but does not teach the polyamide is comprised of H-shaped macromolecular chains and relies on Glück to provide these elements. As was shown above in the discussion of the anticipation rejection, Blount does not teach the composition of Claim 31. Glück does not overcome the deficiencies of Blount.

The above discussion of the non-obviousness of Claim 31 equally applies to the instant rejection, using Gluck in place of Schönfeld. The previous response to the rejection of these claims also applies and is incorporated herein.

Applicants respectfully submit that Claims 35 and 37 are not obvious over Blount in view of Glück and request that this rejection be withdrawn.

4. Claims 36 and 37 have been rejected under 35 U.S.C. §103(a) as unpatentable over Blount (US 4,374,976) in view of Di Silvestro. (US 6,867,256).

Applicants respectfully submit that Claim 33 is not obvious over Blount in view of Di Silvestro and that Claims 36 and 37 are allowable.

The teachings of Blount have been described above under the 35 U.S.C. §102(b) rejections.

Di Silvestro discloses a copolyamide formed by reacting a plurifunctional monomer with at least one bifunctional monomer, where these monomers have specific formulas. Di Silvestro discloses the use of the copolyamides in molded and extruded articles. Di Silvestro does not provide any teachings regarding an expandable composition or the combination of a polyamide with a compound having an acid function and an isocyanate.

The Office Action indicates that Blount teaches the composition of Claim 31 but does not teach the polyamide is a copolyamide with a random arborescent structure and relies on Di Silvestro to provide these elements. As was shown above in the discussion of the anticipation rejection, Blount does not teach the composition of Claim 31. Di Silvestro does not overcome the deficiencies of Blount.

The above discussion of the non-obviousness of Claim 31 equally applies to the instant rejection, using Di Silvestro in place of Schönfeld. The previous response to the rejection of these claims also applies and is incorporated herein.

Applicants respectfully submit that Claims 36 and 37 are not obvious over Blount in view of Di Silvestro and request that this rejection be withdrawn.

5. Claim 38 has been rejected under 35 U.S.C. §103(a) as unpatentable over Blount (US 4,374,976) in view of Bouquerel et al. (US 6,872,800).

Applicants respectfully submit that Claim 38 is not obvious over Blount in view of Bouquerel and that Claim 38 is allowable.

The teachings of Blount have been described above under the 35 U.S.C. §102(b) rejections.

Bouquerel discloses hyperbranched copolyamides and their use as melt viscosity modifiers in producing yarns, fibers, films and molded parts. Bouquerel does not provide any teachings regarding expandable foam compositions or the combination of a polyamide with a compound having an acid function and an isocyanate. Bouquerel discloses that their claimed copolyamide may be formed using an acid, but does not disclose using their claimed copolyamide would

subsequently be used with a compound having an acid function, as required in the claims.

The Office Action indicates that Blount teaches the composition of Claim 31 but does not teach the polyamide is a hyperbranched copolyamides and relies on Bouquerel to provide this element. As was shown above in the discussion of the anticipation rejection, Blount does not teach the composition of Claim 31. Bouquerel does not overcome the deficiencies of Blount.

The above discussion of the non-obviousness of Claim 31 equally applies to the instant rejection, using Blount in place of Schönfeld. The previous response to the rejection of these claims also applies and is incorporated herein.

Applicants respectfully submit that Claim 38 is not obvious over Blount in view of Bouquerel and request that this rejection be withdrawn.

6. Claims 44-46 and 52 have been rejected under 35 U.S.C. §103(a) as unpatentable over Blount (US 4,374,976) in view of Morishige et al. (US 5,817,425).

Applicants respectfully submit that Claim 33 is not obvious over Blount in view of Morishige and that Claims 44-46 and 52 are allowable.

The teachings of Blount have been described above under the 35 U.S.C. §102(b) rejections.

Morishige discloses a layered polyamide film with a polyamide substrate. Morishige discloses using a polyamide obtained by polycondensation of a dibasic acid and a diamine. Morishige does not disclose a polyamide in combination with a compound having at least one acid function. Morishige is silent on an expandable foam composition.



The Office Action indicates that Blount teaches the composition of Claim 31 but does not teach the isocyanate is protected with a protecting group, or the polyamide forms part of a liquid emulsion, and relies on Morishige to provide these elements. As was shown above in the discussion of the anticipation rejection, Blount does not teach the composition of Claim 31. Morishige does not overcome the deficiencies of Blount.

The above discussion of the non-obviousness of Claim 31 equally applies to the instant rejection, using Morishige in place of Schönfeld. The previous response to the rejection of these claims also applies and is incorporated herein.

Applicants respectfully submit that Claims 44-46 and 52 are not obvious over Blount in view of Morishige and this rejection should be withdrawn.

7. Claim 54 has been rejected under 35 U.S.C. §103(a) as unpatentable over Blount (US 4,374,976) in view of Sato et al. (US 4,028,287).

Applicants respectfully submit that Claim 38 is not obvious over Blount in view of Sato and that Claim 54 is allowable.

The teachings of Blount have been described above under the 35 U.S.C. §102(b) rejections.

Sato discloses a process for the preparation of a foam polyamide by ring-opening polymerization of polymerizable lactams in the presence of a basic catalyst, a promoter and a foaming agent. Sato teaches a two component system where the first composition contains the selected lactam and the basic catalyst; and the second composition containing the selected promoter and the foaming agent. Sato is silent

on one of the compounds in a three component system having at least one acid function.

The Office Action indicates that Blount teaches the process of Claim 50 but is silent on the density of the foam product. As was shown above in the discussion of the anticipation rejection, Blount does not teach the composition of Claim 31, which is required in step a) of the process. Sato does not overcome the deficiencies of Blount.

The above discussion of the non-obviousness of Claim 31 equally applies to the instant rejection, using Sato in place of Schönfeld. The previous response to the rejection of these claims also applies and is incorporated herein.

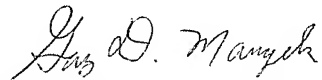
Applicants respectfully submit that Claim 54 is not obvious over Blount in view of Sato and this rejection should be withdrawn.

In view of the foregoing, it is believed that all record rejections are untenable and should be withdrawn. Further, favorable action in the form of a Notice of Allowance is believed to be next in order and is respectfully solicited.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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By:   
Gary D. Mangels, Ph.D.  
Registration No. 55424

P.O. Box 1404  
Alexandria, VA 22313-1404  
703 836 6620